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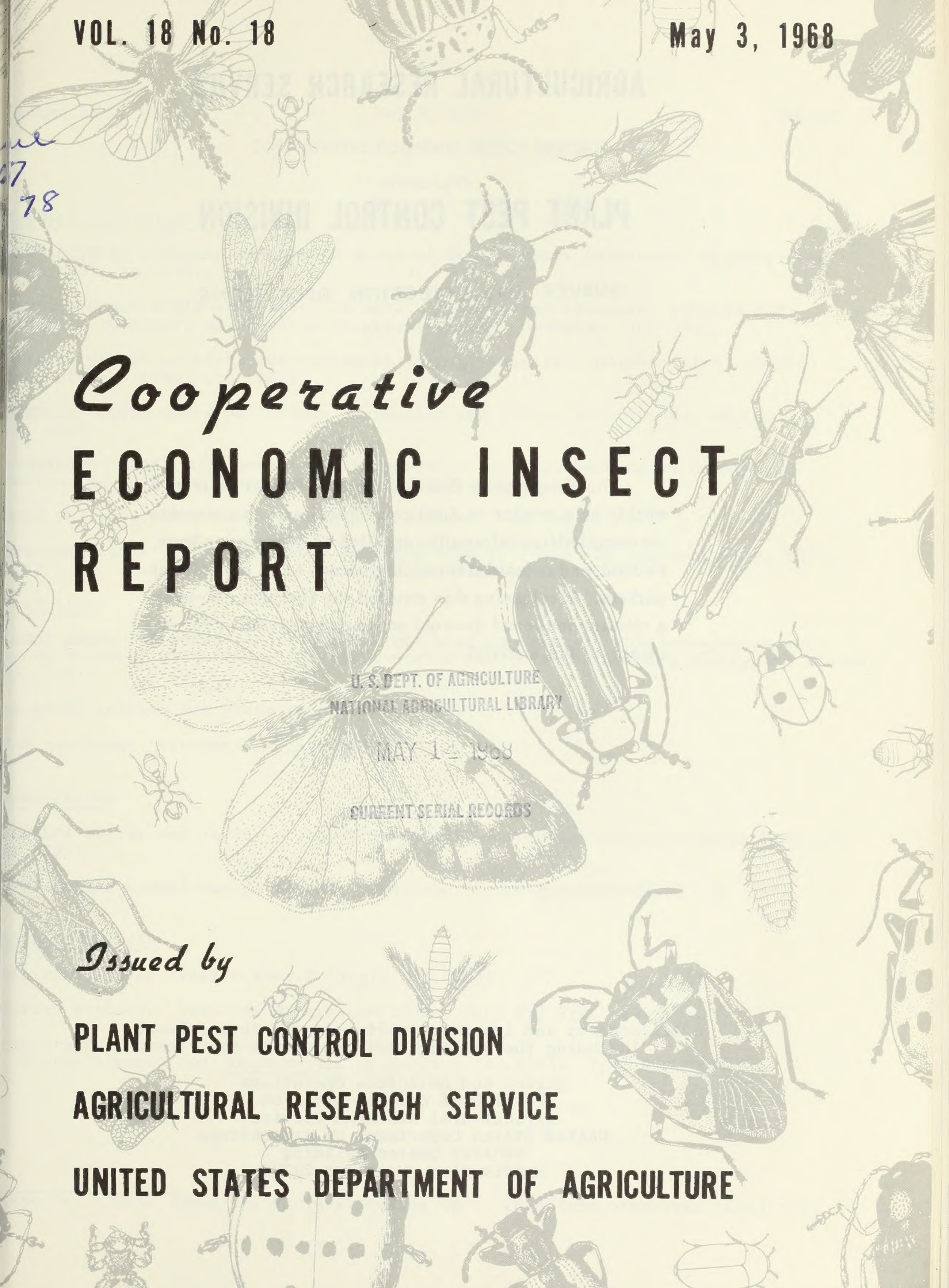

Cooperative ECONOMIC INSECT REPORT

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PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 18 May 3, 1968 Number 18

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMY CUTWORM damaging in certain areas of South Dakota, Nebraska, Wyoming, and Colorado. (p. 353).

ENGLISH GRAIN APHID increasing on wheat in northwest Arkansas; HESSIAN FLY moderate to severe on wheat in Dougherty County, Georgia. (p. 354).

ALFALFA WEEVIL activity increasing in Pennsylvania and Indiana; also reported from other States. (p. 355).

CABBAGE LOOPER heavy on lettuce in Mesilla and Rincon Valleys, New Mexico. (p. 359).

STRAWBERRY CROWN MOTH damage on strawberries heavy in Washington County and serious in Malheur County, Oregon. (p. 361).

HORN FLY very heavy in north-central Oklahoma. (p. 364).

ARMYWORM light trap collections continue high in Texas and Missouri. (p. 367).

Detection

LARGE MANGO TIP BORER reported for first time in Hawaii. This species is not known to occur in continental United States and is a new Western Hemisphere record. (p. 366).

An APHID in Utah new State record. (p. 360).

For new county records see page 360.

Predictions

ALFALFA WEEVIL egg laying expected heavy with favorable temperatures in Illinois. (p. 355).

CEREAL LEAF BEETLE damage to oats predicted in northwestern Ohio. (p. 365).

Special Reports

Distribution of Alfalfa Weevil (map). (p. 368).

Survey Methods. Selected References 1959. Part VII (pp. 369-376).

Insects Not Known to Occur in the United States
Orange Blossom Bug (Dionconotus cruentatus (Brullé)) (pp. 377-378).

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WEATHER OF THE WEEK ENDING APRIL 29

HIGHLIGHTS: Cool weather prevailed over most of the United States. Beneficial rains fell over the eastern half of the Nation. Killer tornadoes hit Ohio and Kentucky.

PRECIPITATION: The Far Northwest received showers early in the week. Amounts exceeded 1 inch along the coast and in parts of the Cascades. Only light rains or scattered showers occurred elsewhere from the Pacific Ocean to the western Great Plains except light to moderate snow in the Colorado Rockies. Light snow fell above about 6,000 feet in Arizona. Rains fell early in the week in the central Great Plains when moderate to heavy showers sent a few streams in central and eastern Iowa to flood stages. Heavy snow on Tuesday and Wednesday blocked roads and closed schools in northeastern Minnesota. Rains early in the week and weekend showers left totals ranging from 1 to more than 3 inches from northeastern Texas to the southern Appalachians. Rains in the Northeast and along the Atlantic coast came mostly in the latter half of the week. Portions of western New England, where little rain had fallen in several weeks, received 2 to 3 inches with some local flooding. Florida's central east coast received scattered showers late in the week. Killer tornadoes struck Ohio and Kentucky on Tuesday. Five tornadoes in Ohio killed 9 persons, injured about 50, and caused more than $3 million property damage. Three tornadoes occurred in Kentucky. They caused several million dollars of property damage, killed 6 persons, and injured at least 100 persons. Other tornadoes occurred in Oklahoma (on Monday) and in Michigan (on Tuesday). Large hail fell from some of the tornadoes and severe thunderstorms on Tuesday. Damaging wind and hail reports came from Wisconsin and Michigan southward to Tennessee and Virginia. Weather of the Week continued on page 367.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - NORTH DAKOTA - Ranged up to 3 (average 0.6) per square foot in 86 percent of winter wheat fields in Hettinger, Slope, and Bowman Counties. Damage generally light in 40 percent of fields; economic in 15 percent. (Brandvik). SOUTH DAKOTA - Damaged alfalfa north of Whitewood, Lawrence County, and near Sturgis, Meade County. (Rezek). Damaged winter wheat near White River, Mellette County; near Philip, Haakon County; near New Underwood, Pennington County; northwest of Presho, Lyman County; and north of Winner, Tripp County. Found on winter wheat in Stanley, Meade, Harding, and Butte Counties. Over 1,000 acres of winter wheat treated in Lyman, Lyman County; controls applied to additional acreages in Lyman and Stanley Counties. (Jenson et al.). NEBRASKA - Negative in 5 fields in Lancaster County. (Keith). Damaged alfalfa in Dawson and Kearney Counties (Stevens, Burnham) and wheat in Cheyenne County (Liljegren). WYOMING - Heavy, 0-4 per square foot on winter wheat and 0-7 on alfalfa in Crook County; larvae smaller in size in alfalfa. Controls applied to some fields. (Parshall). COLORADO - Larvae of this species and *Agrotis orthogonia* extensively damaged wheat in Adams, Arapahoe, Lincoln, Logan, Washington, Weld, and Yuma Counties. Ranged 1-7 per foot of drill row; 0-4 in treated fields. *C. auxiliaris* mostly later instars. Up to 1 per row foot in Sedgwick and Phillips Counties. (Alldredge et al.).

ARMYWORM (*Pseudaletia unipuncta*) - VIRGINIA - Normal in Accomack County light traps. (Hofmaster, Apr. 19).

ASTER LEAFHOPPER (*Macrosteles fascifrons*) - WISCONSIN - Averaged 1 per 100 sweeps on Grant County rye. (Wis. Ins. Sur.).

CORN EARWORM (*Heliothis zea*) - ALABAMA - Moths from overwintering pupae in flight statewide. Some egg laying in central area on rosebuds and crimson clover; some first and second instars on young Lee County corn. (McQueen). ARKANSAS - Second instars averaged 4 per 100 sweeps in alfalfa in Washington County. (Boyer). ARIZONA - Damaged citrus where weeds and other plants present in Maricopa County; *H. zea* moved from infested plants to fruit. (Ariz. Coop. Sur.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - ARIZONA - Present in boot-stage grain in Yuma County; evident in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

GREENBUG (*Schizaphis graminum*) - OKLAHOMA - Activity generally decreased throughout State. (Okla. Coop. Sur.). NEBRASKA - Light, 0-8 (average 2) per 20 sweeps in 8 fields in Saunders and Lancaster Counties. (Keith).

PAINTED LADY (*Vanessa cardui*) - CALIFORNIA - Larvae moderate on *Amsinckia* sp. in Kerman, Fresno County. This is migration year and great flights are moving north across State. (Cal. Coop. Rpt.).

POTATO PSYLLID (*Paratrioza cockerelli*) - ARIZONA - Present on tomatoes and potatoes in Maricopa County. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEW MEXICO - Generally light in alfalfa at Roswell, Chaves County. (Mathews). NEBRASKA - None found in 5 alfalfa fields in Lancaster County. (Keith). Total of 3 aphids taken in 2,000 sweeps in 16 alfalfa fields in Dawson County. (Manglitz). ARKANSAS - Survey negative in northwest area. (Boyer).

CORN, SORGHUM, SUGARCANE

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - FLORIDA - Larvae tunneling in bases of corn plants on several hundred acres near Polk City, Polk County. (Hunter).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - DELAWARE - Pupation averaged 45 percent in Kent and Sussex Counties. (Burbutis).

SEED-CORN MAGGOT (*Hylemya platura*) - NEW JERSEY - Total of 530 taken on 6 stickyboards at Cedarville April 22. (Ins.-Dis. Newsltr.).

SEED-CORN BEETLE (*Agonoderus lecontei*) - MICHIGAN - Heavy in blacklight trap in Ingham County. (Janes, Apr. 22).

SMALL GRAINS

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - ARKANSAS - Increase continues, 500-600 per 100 sweeps, in wheat in northwest area; noneconomic. Very little wheat heading in area. (Boyer). Heavier, up to 25 per head, in headed wheat in eastern area; some fields treated in Crittenden County. (Barnes). NEBRASKA - Ranged 0-3 (average 1.5) per 20 sweeps in 8 wheat fields in Saunders and Lancaster Counties. (Keith). ILLINOIS - Ranged 10-50 in western area. (Ill. Ins. Rpt.). WISCONSIN - Averaged 3 per 100 sweeps on Grant County rye. (Wis. Ins. Sur.).

APHIDS - OREGON - Very high on fall-planted cereals in several areas of Willamette Valley; alates migrating into spring-planted barley. Heavy winter survival on perennial grasses. (Dickason).

PALE WESTERN CUTWORM (*Agrotis orthogonia*) - NEBRASKA - Damaged wheat in Cheyenne, Kimball, and Scotts Bluff Counties; 0-8 per foot of drill row. Mostly third and fourth instars in area. (Hagen, Liljegren). WYOMING - Larvae averaged 1 per linear foot in 10-acre winter wheat field in Platte County. (Parshall). (Also see army cutworm on page 353).

WHEAT HEAD ARMYWORM (*Faronta diffusa*) - OHIO - Adult flight begun in Wayne County April 19. (Rings).

SEED-CORN BEETLE (*Agonoderus lecontei*) - OHIO - Adults in soil in wheat field in Pickaway County March 29. (Blair, Stewart). Adults first appeared in blacklight trap collection in Franklin County April 11-18. (Rose).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - ILLINOIS - Ranged 0-10 per 100 sweeps on western area wheat. (Ill. Ins. Rpt.).

SOUTHERN GREEN STINK BUG (*Nezara viridula*) - FLORIDA - Adults of this species 5-6 per 100 sweeps and *Euschistus servus* 3 per 100 sweeps on mature oats at Gainesville, Alachua County. (Mead).

HESSIAN FLY (*Mayetiola destructor*) - GEORGIA - Moderate to severe on 900 acres of wheat in Dougherty County. (Hays).

BROWN WHEAT MITE (*Petrobia latens*) - COLORADO - Ranged up to 10 per leaf east of Idalia, Yuma County; up to 3 per leaf north of Otis, Washington County. Scattered and noneconomic in area. (Jenkins, Johnson).

TURF, PASTURES, RANGELAND

A BILLBUG (*Sphenophorus venatus confluens*) - OREGON - Becoming important pest of orchard grasses in western area; heaviest around Corvallis, Benton County. Damage more evident in fields 3 years and older. Adults averaged 2 and 3 per square yard in test plots. (Kamm).

SAY STINK BUG (*Pitedia sayi*) - NEVADA - Nymphs heavy on various range plants in Clark County. (Johnson, Zoller).

TWO-LINED SPITTLEBUG (*Prosapia bicincta*) - FLORIDA - First adult of season taken in blacklight trap at Gainesville, Alachua County. (Mead).

A THRIPS (Rhipidothrips brunneus) - CALIFORNIA - Nymphs and adults moderate in pasture grasses in El Dorado, El Dorado County. (Cal. Coop. Rpt.).

MITES - NEBRASKA - Total of 1,200 taken in 60 sweeps in bromegrass pasture in Lancaster County. (Keith). SOUTH CAROLINA - Bryobia praetiosa very heavy in central area; becoming increasingly important in State. (Nettles et al., Apr. 24).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEW YORK - Adults 6 per 50 sweeps in 2 alfalfa fields in Erie County April 19; no eggs evident. Adults 2 per 50 sweeps in field in Ithaca, Tompkins County, April 21. (N.Y. Wkly. Rpt.). PENNSYLVANIA - Mostly first and second instars numerous in alfalfa tips in Dauphin County April 18. Adults 0.5 per sweep; activity increasing. Egg laying currently very heavy in new stems in Dauphin County. (Hower). NEW JERSEY - Larvae difficult to find in southern counties as of April 24. Adults averaged 35 and larvae 50 per 100 sweeps near Mickleton; larval damage insignificant. Alfalfa growth 12-18 inches in area. Delay in appearence in 1968 probably due to extensive kill of overwintering eggs in January. (Ins.-Dis. Newsltr.).

MARYLAND - Generally spotty throughout State; development rapid. Spraying underway in central and eastern areas. Larvae averaged 120 per 10 sweeps in fields in Cambridge, Dorchester County; terminal damage 70-80 percent. Terminal damage ranged 30-40 percent in Wicomico County field. (U. Md., Ent. Dept.). VIRGINIA - Larvae averaged 500 and adults 10 per 100 sweeps in 80-acre alfalfa field in Mecklenburg County. (Allen). OHIO - Larvae and alfalfa damage increased in southern half of State. Larvae ranged 2-30 (average 12) per sweep and 1-5 (average 3) per stem in 5 fields in Scioto, Ross, Lawrence, Gallia, and Washington Counties; some controls applied in south-central counties. All instars present in area. Alfalfa growth in south 12-18 inches. (Rose). Adult activity and egg laying evident in Wayne, Holmes, Ashland, and Medina Counties; larval feeding begun in some Wayne County fields. Larvae active much earlier than in 1967; leaf damage up to 50+ percent. Alfalfa growth 10 inches in Wayne County April 19. (Glass). No egg hatch as of April 22 in Medina County (Thoburn); larval feeding in Belmont and Fairfield Counties (Brown, Taylor). INDIANA - Economic throughout southern third of State. Larvae ranged 1-7 per stem on 40-100 percent of alfalfa; heaviest in south-central and southeastern districts. Feeding damage ranged 20-80 percent; up to 25 percent silver-tip injury in most heavily infested fields. Fourth and fifth instars comprised 20-30 percent of larvae in alfalfa samples collected throughout southern third; other larvae mostly first and second instars. Adults ranged 100-200 per 100 sweeps throughout southern third; 30-50 percent of adults mating. In central third, larvae ranged 2-9 per square foot and adult activity increased greatly. Adults ranged 122-178 per 100 sweeps; 25 percent of adults mating. Larvae generally increased rapidly throughout southern third; mating and egg laying in southern two-thirds of State. Development based on occurrence of equal population densities and infestation rates 2-3 weeks behind in southern third; similar to 1967 in central area. (Huber).

ILLINOIS - Range and (average) of H. postica per 100 sweeps in alfalfa by area: Central - larvae 0-8 (4), adults 0-5 (2.5); west-southwest - larvae 0-150 (41), adults 0-30 (3); southwest - larvae 0-4,600 (1,176), adults 0-150 (37); east-southeast - larvae 100-300 (200), adults 0-3 (1.5); southeast - larvae 7-3,600 (2,366), adults 8-40 (24). Terminal damage averaged 6 percent in west-southwest, 62 percent in southwest, and 9 percent in east-southeast. Eggs ranged from 11 to 57-135 per square foot in State. (Ill. Ins. Rpt.). Egg laying and feeding slowed by cool weather; heavy egg laying expected with favorable temperatures. Second field treatments anticipated south of line from Harrisburg to Carbondale week of April 29. Adults, eggs, and full-grown larvae in area; damage evident and will increase in untreated fields. Many fields treated north of above line and south of line from Nashville to Mt. Vernon. Few fields treated north to U.S. Highway 50 where larvae readily found and expected to increase. Development very much slower than expected north of U.S. Highway 50 and almost up to U.S. Highway 40; even slower north of U.S. Highway 40 and south of line from Watseka to Springfield to Hardin. (Ill. Ins. Bull.). ARKANSAS - Specimens collected in Logan County for new county record. Larvae averaged 3 per 100 sweeps in Washington County field. (Boyer). Buildup slower and more drawn out in northeast area than in 1967. (Miner). MISSOURI - Larvae 70-90 per sweep on some southeast area alfalfa (Keaster); adults 5 and larvae 20 per 25 sweeps in Stone County alfalfa field (Craig). NEBRASKA - Surveys negative in 16 fields in Dawson and panhandle counties. (Manglitz, Hagen). SOUTH DAKOTA - Adults taken on stickyboard traps in field near Spearfish, Lawrence County, March 30-April 22. (Jones). WYOMING - Adults difficult to find on Platte and Goshen County alfalfa; alfalfa growth 2 inches. (Parshall).

CLOVER LEAF WEEVIL (*Hypera punctata*) - VIRGINIA - Larvae damaged 25 percent of leaves in 2-acre red clover field in Mecklenburg County. (Allen). ILLINOIS - Larvae ranged 0-20 per square foot in southwest (average 4) and west-southwest (average 7) areas; 4-20 (average 9) per square foot in western area. (Ill. Ins. Rpt.). Decreased in red clover; larval disease widespread in some fields. (Ill. Ins. Bull.). OKLAHOMA - Larvae averaged 2 and adults one per 10 square feet in Payne County alfalfa field. (Okla. Coop. Sur.). WYOMING - Larvae averaged less than 1 per square foot in Platte and Goshen County alfalfa. (Parshall).

CLOVER HEAD WEEVIL (*Hypera meles*) - MISSOURI - Adult collected in Taney County, April 15, 1968, by J. Hubbard. This is a new county record. (Munson).

SWEETCLOVER WEEVIL (*Sitona cylindricollis*) - NEBRASKA - Damage evident on sweetclover in eastern area. (Keith).

PEA APHID (*Acyrthosiphon pisum*) - MARYLAND - Counts per 10 sweeps ranged 30-50 in alfalfa field near Cambridge, Dorchester County, and 20-30 in red clover around Salisbury, Wicomico County. (U. Md., Ent. Dept.). VIRGINIA - Adults and nymphs 200 per 100 sweeps in 1-acre red clover field in Mecklenburg County. (Allen). INDIANA - Ranged 0-6 per 10 sweeps throughout southern half of State. (Huber). ILLINOIS - Ranged 1-3 per sweep in south half of State. (Ill. Ins. Rpt.). NEBRASKA - Ranged 12-160 (average 45) per 10 sweeps in 5 alfalfa fields in Lancaster County; highest count in alfalfa field near Lincoln. (Keith). Total of 6 aphids taken in 2,000 sweeps in 16 alfalfa fields in Dawson County. (Manglitz). MISSOURI - Counts per 10 sweeps averaged 330 in southwest alfalfa field (Craig) and 255 in south-central alfalfa (Munson). MISSISSIPPI - Moderate, 10 per square foot, on Oktibbeha County alfalfa. (Dinkins). ARKANSAS - Counts per sweep ranged 20-25 in alfalfa and 25-30 in vetch in northwest area. Percent winged forms 5 percent compared with 20 percent last week; 20-25 percent of aphids parasitized. (Boyer). OKLAHOMA - Averaged 125 per 10 square feet of crown in Payne County alfalfa. (Okla. Coop. Sur.). NEW MEXICO - Averaged 0.25 teaspoonful per 50 sweeps in alfalfa at Tularosa, Otero County (Elson); generally light in alfalfa at Roswell, Chaves County (Mathews). ARIZONA - Ranged 400-500 per 100 sweeps in alfalfa in Roll and Yuma area, Yuma County. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - OHIO - Hatch in progress; first nymphs of season in southern area April 9. Nymphs in Putnam County April 19. (Nicholson). First and second instars light on south-central area alfalfa. (Rose). INDIANA - Spittle masses averaged 2 per stem on 40-70 percent of alfalfa in southeast district. (Huber).

LEAFHOPPERS - VIRGINIA - Adults averaged 120 per 100 sweeps in 50-acre Botetourt County clover field. (Allen, Apr. 16). MARYLAND - *Aceratagallia sanguinolenta* ranged 50-60 per 10 sweeps in red clover field near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Mostly adults ranged 60-150 per 100 sweeps in alfalfa in Yuma and Roll areas, Yuma County; heavier in Roll area. Ranged 80-100 per 100 sweeps in alfalfa in Pinal County. (Ariz. Coop. Sur.). NEW MEXICO - Averaged 2-6 per 25 sweeps in alfalfa at Roswell, Chaves County (Mathews) and 3 per 50 sweeps at Tularosa, Otero County (Elson). ILLINOIS - L. lineolaris adults ranged 10-60 per 100 sweeps on alfalfa in southern half of State. (Ill. Ins. Rpt.).

NOCTUID MOTHS - ARIZONA - Spodoptera exigua counts per 100 sweeps on alfalfa averaged 20 in Pinal County and 150-175 in Yuma County. Prodenia ornithogalli ranged 30-100 per 100 sweeps in Pinal County alfalfa. (Ariz. Coop. Sur.). OREGON - Newly emerged Autographa californica adults taken in light traps at Hermiston, Umatilla County. (Goeden).

COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Negative in 2-leaf cotton on 4 farms in Monroe County. (Gamble). None in 2-leaf cotton on 2 farms in Covington County; one farm replanted. First weevils of season averaged 75 per acre in 8-acre field at Red Level, Montgomery County. (Pike).

BOLLWORMS (Heliothis spp.) - ALABAMA - H. virescens and H. zea moths light and laying eggs on legumes. (McQueen).

THRIPS (Frankliniella spp.) - ARIZONA - Light in untreated field in Graham County; damaged untreated plants in Maricopa, Pinal, and Yuma Counties. Weather unfavorable for cotton and plants vulnerable to damage. (Ariz. Coop. Sur.).

SUGARBEETS

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Counts per 100 sweeps averaged 20 in Pinal County and 2-4 on seedlings in Graham County. (Ariz. Coop. Sur.).

SUGAR-BEET WIREWORM (Limonius californicus) - COLORADO - Larvae ranged 0-1 per square foot in old fields north of Windsor, Weld County. (Johnson, Apr. 19).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Larvae and pupae up to 4 per square foot in old Weld County fields. (Alldredge).

POTATOES, TOMATOES, PEPPERS

POTATO TUBERWORM (Phthorimaea operculella) - ALABAMA - Only 1 larva observed in numerous visits to commercial southwest potato-producing area. This specimen in leaves of volunteer potatoes at Atmore, Escambia County. General sanitary measures in 1967 and treatment of several thousand acres past 30 days responsible for almost complete elimination of pest in 1968. (Leeper et al.).

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Present on some Yuma County tomato plants. (Ariz. Coop. Sur.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - VIRGINIA - Overwintered adults feeding on newly emerged potatoes in southern Northampton County. (Hofmaster, Apr. 19). ALABAMA - Overwintered adults light in some isolated Baldwin County potato plantings; feeding and egg laying evident. Seldom major problem due to consistent effective controls. (Leeper, Smith). MISSISSIPPI - Heavy, 4 per 6-inch eggplant, in 0.25-acre Simpson County field. (Brown et al.).

FLEA BEETLES - ARIZONA - Chaetocnema spp. on bell peppers in Yuma County; controls applied. (Ariz. Coop. Sur.). GEORGIA - Epitrix cucumeris severe on potatoes in Spalding County. (Dupree).

BEANS AND PEAS

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Light to medium with feeding on young snap beans and peas in southwest commercial plantings. (Leeper et al.). MISSISSIPPI - Heavy, 10 per plant, on acre of 8 to 10-inch-high string beans in Simpson County. (Brown et al.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Adults light but widespread on beans in commercial and home garden plantings in Union Church community and most of southern Mobile County. (Seibels, Bolton).

PEA APHID (Acyrthosiphon pisum) - OKLAHOMA - Averaged 15 per plant on peas in Payne County. (Okla. Coop. Sur.).

COWPEA APHID (Aphis craccivora) - ALABAMA - Very heavy and widespread on cowpeas in Union Church community, Mobile County. (Bolton, Seibels).

BEAN APHID (Aphis fabae) - ALABAMA - Very heavy and widespread on all beans in Union Church community, Mobile County. (Bolton, Seibels).

SPIDER MITES - GEORGIA - Heavy on peas in Wilcox County. (Barber).

COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - GEORGIA - Moderate to heavy on cabbage in Spalding County. (Dupree).

POTATO APHID (Macrosiphum euphorbiae) - CALIFORNIA - This species and Myzus persicae medium on 5-acre radish planting in Fresno, Fresno County. (Cal. Coop. Rpt.).

CUCURBITS

SQUASH BEETLE (Epilachna borealis) - ALABAMA - Adults still in hibernation under pine bark on trees in Brookley Field area, Mobile County; emergence usually late in this area. (Bolton et al.).

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - MISSISSIPPI - Heavy, 20 per squash plant, in 0.5-acre Simpson County field; controls applied. Plants in bloom and fruiting. (Brown et al.).

FLEA BEETLES (Chaetocnema spp.) - ARIZONA - Controls applied to cantaloups in Yuma County. (Ariz. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - Controls applied to some fields in Yuma County. (Ariz. Coop. Sur.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - This species and Entomobrya unostrigata (a springtail) moderate on 40 acres of cantaloups in Dos Palos, Fresno County. (Cal. Coop. Rpt.).

GENERAL VEGETABLES

SOUTHERN POTATO WIREWORM (Conoderus falli) - SOUTH CAROLINA - In blacklight traps at Charleston for weeks ending April 7 - 578, April 14 - 401, April 21 - 1,731. (Cuthbert).

ASPARAGUS BEETLE (Crioceris asparagi) - NEW JERSEY - Numerous in Gloucester County fields April 23. (Ins.-Dis. Newsltr.).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Heavy on lettuce in Mesilla and Rincon Valleys; controls underway. (Campbell).

BLACK CUTWORM (Agrotis ipsilon) - MICHIGAN - First of season at blacklight station April 21 in Livingston County. (Janes).

ONION MAGGOT (Hylemya antiqua) - NEW JERSEY - Total of 280 collected on 6 stickyboards at Cedarville April 22. (Ins.-Dis. Newsltr.).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Carpocapsa pomonella) - INDIANA - Pupation in 7 of 10 cocoons in Vincennes area; adults negative in sex lure traps, light traps, and bait jars. (Dolphin, Apr. 22). NEW YORK - First pupae of season April 15 under tree bands in eastern area; normal date April 20. (N.Y. Wkly. Rpt.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - First adult of season collected in bait jar April 19 in Vincennes area; appearance 13 days later than in 1967. Total of 27 moths collected in 4 bait stations in one orchard. (Dolphin).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Total of 477 males taken compared with 1,435 collected previous period in Vincennes area. (Dolphin, Apr. 22). NEW YORK - Many moths attracted to pheromone traps in eastern area orchards; only few taken in sugar-baited traps. (N.Y. Wkly. Rpt., Apr. 22).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CONNECTICUT - Egg hatch begun on apple trees in Storrs, Middlefield, and Cheshire; larval damage in Storrs and Cheshire. (Savos, Apr. 23).

PEACH TREE BORER (Sanninoidea exitiosa) - INDIANA - Full-grown larvae in cocoons at base of peach trees in Vincennes area. (Dolphin, Apr. 22).

FALL CANKERWORM (Alsophila pometaria) - PENNSYLVANIA - First larvae of season on crab apple April 20 in Northumberland County. (Gesell).

A PHYCITID MOTH (Acrobasis tricolorella) - MICHIGAN - Overwintering larvae in webs in cherry trees in Hart and Shelby area, Oceana County. Larvae beginning to appear in Traverse City; controls applied April 22-28. Infestations lighter than last year. (Wooley).

CLIMBING CUTWORMS - MICHIGAN - Much injury on apple, plums, and other tree fruit crops. (Wooley).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Eggs abundant in Storrs and Middlefield. (Savos, Apr. 23). NEW YORK - First egg hatch April 20 in Monroe and Orleans Counties. (N.Y. Wkly. Rpt.). MICHIGAN - Heavier than normal in Traverse City orchards. (Wooley, Apr. 22).

ROSY APPLE APHID (Dysaphis plantaginea) - PENNSYLVANIA - Stem mothers rapidly producing young on apple trees in Adams County; pears and peaches in full bloom. (Asqueth, Apr. 17). NEW YORK - First of season April 15 in Ulster County. (N.Y. Wkly. Rpt.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - GEORGIA - Egg hatch begun on peach trees in Spalding County. (Tippins).

TARNISHED PLANT BUG (Lygus lineolaris) - CONNECTICUT - Abundant on apple trees in Middlefield, Southington, Cheshire, and Lyme areas; evident on pear trees in Glastonbury area. (Savos, Apr. 23).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - Overwintering egg hatch 95 percent complete on apple trees in Storrs, Tolland County; hatch begun in Cheshire and Middlefield area. No hatch in Woodstock and Bantam areas. (Savos, Apr. 23). NEW YORK - Overwintering eggs heavy in Monroe and Orleans Counties. Egg hatch begun April 15 in Ireland Corners, Ulster County; 50 percent complete April 19. (N.Y. Wkly. Rpt.). NEW JERSEY - Newly hatched larvae easily found on apple from Middlesex County south April 23. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Egg hatch 50+ percent on apple trees in Adams County; apples in full pink stage. (Asqueth, Apr. 17). DELAWARE - Newly hatched nymphs on apples in New Castle County. (Kelsey). OHIO - Egg hatch 50 percent complete in apple orchard in Fairfield County April 24; early varieties of apples blooming in central area. (Holdsworth). Hatch 30-40 percent complete in Wayne County. (Forsythe). INDIANA - Egg hatch nearly complete in Vincennes area; larvae up to 30 per leaf on untreated apples. Light, 0-2 per leaf, in some peach trees. (Dolphin, Apr. 22). MICHIGAN - Hatch in southwest area. Severe on cherries, peaches, plums, and prunes; heavier than normal. (Wooley, Apr. 22).

AN APHID (Monelliopsis tuberculata) - UTAH - Collected from black walnut at Washington, Washington County, June 13, 1957, by G.F. Knowlton. Det. by T.L. Bissell. This is a new State record. Taken on black walnut at Logan, Cache County, June 9, 1963. Det. by L.M. Russell. Collected on black walnut during 1966 by G.F. Knowlton in Carbon, San Juan, Box Elder, Emery, Davis, Millard, Weber, Utah, Uintah, Salt Lake, and Grand Counties. Det. by T.L. Bissell. Taken by G.F. Knowlton during 1967 as the dominant aphid species in all parts of State where black walnut examined. Det. by A.G. Robinson and C.F. Smith. (Roberts).

FILBERT APHID (Myzocallis coryli) - OREGON - First young and alates on underside of leaves in filbert orchards April 16 in Marion and Lane Counties. (Jones).

INSECT DETECTION

New State Records

LARGE MANGO TIP BORER (Bombotelia jocosatrix (Guenée)) - HAWAII - Two adults taken at light in Punahou area of Honolulu, Oahu, in early April. Det. by M. Chong, confirmed by E.L. Todd. This is also a new Western Hemisphere record. (P. 366).

An APHID (Monelliopsis tuberculata) - UTAH - Collected from black walnut at Washington, Washington County, June 13, 1957, by G.F. Knowlton. Det. by T.L. Bissell. (p. 360).

New County Records

ALFALFA WEEVIL (Hypera postica) - ARKANSAS - Logan County. (P. 356).

CLOVER HEAD WEEVIL (Hypera meles) - MISSOURI - Taney County. (p. 356).

An ARMORED SCALE (Chionaspis longiloba) - FLORIDA - Polk County. (p. 363).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - ALABAMA - Bibb and Bullock Counties. (p. 364).

CORRECTIONS

CEIR 18(15):281 - ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) in North Dakota should read WINTER TICK (Dermacentor albipictus). (Brandvik).

CEIR 18(16):306 - CUTWORMS (Agrotis orthogonia) - NEBRASKA - Change absent in Keith, Duel, Cheyenne, and Kimball Counties to undetected in Keith, Cheyenne, Duel, and Kimball Counties.

CITRUS

Citrus Insect Situation in Florida - Mid-April - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 70 percent of groves (norm 58 percent); 47 percent economic (norm 36 percent). Population similar to that of late March; above average and in high range. Slight decrease expected. Highest districts south, central, and west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 37 percent of groves (norm 37 percent); 12 percent economic (norm 16 percent). At normal low level for April. Further increase expected; some heavy infestations will develop. Highest districts east and south. CITRUS RED MITE (Panonychus citri) infested 43 percent of groves (norm 45 percent); 12 percent economic (norm 16 percent). Population in low range and slightly below normal. Statewide population expected to decrease slightly, but some local infestations will increase. Highest district east. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infested 4 percent of groves and expected to continue below normal abundance and at very low level. GLOVER SCALE (Lepidosaphes gloverii) infested 80 percent of groves (norm 80 percent); 8 percent economic (norm 25 percent). Population below normal and moderate. Little change expected. Highest districts east, central and south. PURPLE SCALE (L. beckii) infested 65 percent of groves (norm 84 percent); 1 percent economic (norm 14 percent). Population below normal and low. Slight increase expected. Highest district west. CHAFF SCALE (Parlatoria pergandii) infested 68 percent of groves (norm 71 percent); 3 percent economic (norm 14 percent). Below average and at low level in all districts. Further decrease expected. YELLOW SCALE (Aonidiella citrina) infested 66 percent of groves (norm 65 percent); 2 percent economic (norm 13 percent). Population below normal and low. Little change expected. Highest district east. BLACK SCALE (Saissetia oleae) infested 34 percent of groves (norm 32 percent); 14 percent economic (norm 10 percent). Population slightly above average for April but in low range. Increase expected early in May. Highest districts east and central. An ARMORED SCALE (Unaspis citri) infested 15 percent of groves; increase expected. APHIDS infested 16 percent of groves, about half of normal percentage for April. Most infestations expected to be light and of short duration. WHITEFLIES near normal and at moderate level. Increase expected in May. MEALYBUGS currently at very low level. Strong increase expected at mid-May. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Controls continue in many orchards on Yuma Mesa. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Continue to appear in Yuma County; treatments in progress. (Ariz. Coop. Sur.).

SMALL FRUITS

GRAPE PHYLLOXERA (Phylloxera vitifoliae) - ALABAMA - Galls light to medium on developing grape leaves in gardens statewide, especially in Lee County. (McQueen).

STRAWBERRY CROWN MOTH (Ramosia bibionipennis) - OREGON - Damage heavy in Washington County strawberry fields; virtually destroyed small isolated field of second-year Hood variety. Damage serious in Malheur County. (Goeden).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - NEW JERSEY - Moths active; few eggs confined to older beds. Parasite control fair; noneconomic past few years. (Ins.-Dis. Newsltr.). OREGON - Adults flying April 7 in Washington County. (Goeden).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - ALABAMA - Several hundred per leaf in isolated strawberry plants in Conecuh County field; damage heavy. (Oakley).

A WHITEFLY (Trialeurodes ruborum) - CALIFORNIA - Nymphs, pupae, and adults moderate on boysenberries at Culver City, Los Angeles County. (Cal. Coop. Rpt.).

ORNAMENTALS

SPRUCE NEEDLE MINER (Taniva albolineana) - OREGON - Damage severe to ornamental spruce in localized sections of Hermiston, Umatilla County; some adult emergence. (Goeden).

A CHRYSAUGID MOTH (Galasa nigrinodis) - VIRGINIA - Larvae 0.25-inch-long and still active on English boxwood; overwintered at Richmond, Henrico County. (Weidhaas, Innes, Apr. 18).

ARMORED SCALES - FLORIDA - Aspidiotus spinosus on boxwood at Apopka, Orange County, April 18. (Musgrove). Ischnaspis longirostris on Jasminum pubescens at nursery in Ft. Lauderdale, Broward County, April 9. (Clinton.). Both scales new Florida Department of Plant Industry host records. (Fla. Coop. Sur.). Many Pseudaonidia clavigera nymphs on 50 of 125 camellia plants at nursery in Springhead, Hillsborough County, April 17. (Vaughan). This is first occurrence at Springhead locality. (Fla. Coop. Sur.).

CHRYSANTHEMUM APHID (Macrosiphoniella sanborni) - OKLAHOMA - Heavy, 100-500 per 4-inch plant, in Payne County. (Okla. Coop. Sur.).

A CHERMID (Adelges tsugae) - VIRGINIA - Hatch 50 percent complete; nymphs actively crawling at Richmond, Henrico County. (Weidhaas, Innes, Apr. 18).

WHITEFLIES - ALABAMA - Adults ranged 50-150 per gardenia leaf in numerous and widespread plantings throughout southern and central areas. Adults heavy in over half of plants examined at homes and around commercial buildings. Egg laying expected on new growth. (McQueen).

FOREST AND SHADE TREES

OLETHREUTID MOTHS - OHIO - Taniva sp. severe, several hundred per tree, on several thousand white and Norway spruce in Trumbull County. (Campbell, Apr. 19). INDIANA - Rhyacionia frustrana adults abundant on white pine at Evansville April 12. (Schuder). OREGON - R. buoliana pupae April 16 in Hermiston area, Umatilla County. (Goeden).

WEEVILS - INDIANA - First Hylobius pales adult of season in blacklight trap in Tippecanoe County April 10. (Schuder). OHIO - H. pales and Pissodes approximatus 1-8 per stump in all Scotch pine stumps in Christmas tree planting in Scioto County; H. pales dominant. Two-thirds of females mated. Adults 10 per stump in Scotch pine plantation in Coshocton County. (Campbell, Apr. 17).

PINE BARK APHID (Pineus strobi) - OHIO - Eggs generally abundant on 2-3 acres of white pine plantation in Vinton County. (White, Apr. 17). VIRGINIA - Egg hatch 25 percent complete on Caroline County white pine. (Eagar, Allen, Apr. 10). CONNECTICUT - Mostly eggs very abundant on many white, Scotch, and Austrian pines; hatch expected soon. (Savos, Apr. 24.).

SPRUCE GALL APHIDS (Adelges spp.) - WISCONSIN - A. cooleyi eggs plentiful on Colorado spruce at Madison; no hatch as of April 25. Overwintered females laid eggs on Douglas fir. (Wis. Ins. Sur.). PENNSYLVANIA - A. abietis egg laying by stem mothers April 19 on Colorado spruce in Bucks, Montgomery, Delaware, and Chester Counties. (Stearns).

AN ARMORED SCALE (Chionaspis longiloba) - FLORIDA - Collected on willow at Homeland, Polk County, April 11, 1968. (McLeod, Schmidt). This is a new county record. (Fla. Coop. Sur.).

AN APHID (Eulachnus agilis) - OHIO - Late instars heavy on Scotch pine in Summit County planting; lighter in Lake County. (Campbell). PENNSYLVANIA - First nymphs April 21 on McKean County pine. Infestation bears watching. (Adams).

PINE SPITTLEBUG (Aphrophora parallela) - OHIO - Early instars beginning to form spittle masses April 22 on Scioto County Scotch pine. (Campbell).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - OHIO - Eggs hatched; first instars on Scotch pine in Wood, Guernsey, and Coshocton Counties. Larvae common and potentially damaging in Coshocton County. (Jones et al., Apr. 17). NEW JERSEY - Feeding begun on Somerset County Scotch pine April 21. (Ins.-Dis. Newsltr.).

CECIDOMYIID MIDGES (Contarinia spp.) - OREGON - Adults emerging in Douglas-fir Christmas tree plantings in Benton County. Extensively damaged plantings last year by yellowing and serious defoliation. (Nagle).

SPRUCE SPIDER MITE (Oligonychus ununguis) - PENNSYLVANIA - Very active and almost full grown on Norway spruce in McKean County April 23; extremely early for this area. (Adams). INDIANA - Increasing throughout State. (Schuder).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ILLINOIS - Common on trees, along roadsides, and wooded areas in south area. (Ill. Ins. Bull.). INDIANA - Nests conspicuous on wild cherry and unsprayed apple trees in Vincennes area. (Dolphin, Apr. 22). OHIO - Egg hatch statewide April 10-17; larvae fed especially on wild cherry and flowering crab apple foliage in southern half of State and in Lorain and Cuyahoga Counties. Webbing very heavy on wild cherry in some south areas; development less advanced in north area. (Peacock et al.). Large populations established early this year; extensive defoliation of wild cherry and apple expected in southern, central, and eastern areas. Larvae 0.5-1.25 inches in Washington and other southern counties April 10-24. Migrated from wild cherry when foliage consumed. Large populations less prevalent than 1-2 years ago in Scioto, Lawrence, Gallia, Meigs, and Washington Counties; may be larger this year further north where infestations scattered and local 1-2 years ago. (Rose). NEW JERSEY - Active on wild cherry at Bloomingdale, Passaic County. Webbing well underway. (Ins.-Dis. Newsltr.). FLORIDA - Common in blacklight traps at Gainesville, Alachua County. (Habeck, Mead).

TENT CATERPILLARS - SOUTH CAROLINA - Heavy on wild cherry throughout Piedmont. (Nettles et al., Apr. 24). MICHIGAN - Heavy in Traverse City area. (Wooley, Apr. 22).

ELM LEAF BEETLE (Pyrrhalta luteola) - ARIZONA - Adults heavy on elm at Page, Coconino County; controls in progress. (Ariz. Coop. Sur.). CALIFORNIA - Adults medium on elm at Yreka, Siskiyou County; unusually early for this far north. Adults moving into elm in other areas; some larval activity evident. (Cal. Coop. Rpt.). NEVADA - Adult emergence underway; feeding begun on elm foliage. (Bechtel, Lauderdale).

LOCUST LEAF MINER (Xenochalepus dorsalis) - ALABAMA - Laid eggs; first instars mined leaves of black locust used as shade trees in central and north areas. (McQueen).

GIANT BARK APHID (Longistigma caryae) - ARKANSAS - Present on trees in central area past 2-3 weeks; honey dew heavy under trees. (Barnes).

MAN AND ANIMALS

MOSQUITOES - MARYLAND - Aedes canadensis and A. sticticus biting at Green Castle

Manor, Prince Georges County. Several Aedes spp. emerging on Eastern Shore. Annoyance from early spring species expected to peak April 24-30 in lower Eastern Shore counties. (U. Md., Ent. Dept.).

SCREW-WORM (Cochliomyia hominivorax) - Total of 22 cases reported in U.S. April 21-27 as follows: TEXAS - Atascosa 1, Cameron 1, Dimmit 1, DuVal 1, Frio 1, Hidalgo 3, Jim Hogg 1, Jim Wells 2, Karnes 1, La Salle 1, Live Oak 1, Maverick 1, Medina 1, Starr 3. ARIZONA - Pima 1, Yuma 2. Total of 371 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 6, Territorio sur de Baja California 98, Sonora 125, Chihuahua 6, Coahuila 18, Nuevo Leon 16, Tamaulipas 102. Total of 16 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 23,320,000; Arizona 300,000; California 300,000; Mexico 71,410,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Adults ranged 100-800 per head on mature cows in north-central area; up to 2,000 per head on Payne County bulls. (Okla. Coop. Sur.). MISSISSIPPI - Adults averaged 250 per head on Oktibbeha County beef herd. (Hoelscher).

FACE FLY (Musca autumnalis) - INDIANA - First activity at Clay City, Clay County, April 21. (Matthew). OREGON - Males present in Umatilla and Washington Counties April 1. Very light, less than 1 per head, April 22 in Hermiston area, Umatilla County. (Goeden).

EYE GNATS - GEORGIA - Heavy in recreation areas and around homes in Tift, Irwin, and Ben Hill Counties; large swarms on food in recreation area at Hard Labor Creek State Park. (Snoddy).

A BITING MIDGE (Culicoides variipennis) - CALIFORNIA - Annoying outdoors; entering residences in Lake Highlands, Lake County. (Grodhouse, Doty).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Collected from range turkeys in Benton County. New host record for State. (Lancaster).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - ALABAMA - Several specimens collected from Bibb County and one from Midway, Bullock County. These are new county records. Det. by W.J. Gertsch. (Odom et al.).

HOUSEHOLDS AND STRUCTURES

WHARF BORER (Nacerdes melanura) - NORTH DAKOTA - Adults in building at Fargo, Cass County; holes in supporting wood timbers. Controls applied. (McBride).

MISCELLANEOUS WILD PLANTS

WHITE-LINED SPHINX (Celerio lineata) - NEVADA - First adults of season at light in southern Washoe County. (Nev. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES - ARIZONA - Hippodamia convergens ranged 90-100 per 100 sweeps on Pinal County alfalfa. (Ariz. Coop. Sur.). NEBRASKA - Lady beetles very light, less than 1 per 100 sweeps, on wheat and alfalfa in Saunders and Lancaster Counties. (Keith). ALABAMA - Overwintered Chilocorus stigma adults widespread on many ornamental shrubs in Decatur and other north areas; fed on various aphids. (Eich). VIRGINIA - Ceratomegilla maculata adults 10 per 100 sweeps in 1.5 acre Amherst County clover field. (Allen, Apr. 18).

DAMSEL BUGS (Nabis spp.) - NEBRASKA - Up to 5 (average 2) per 10 sweeps on wheat and alfalfa in Saunders and Lancaster Counties. (Keith).

BIG-EYED BUGS (Geocoris spp.) - ARIZONA - Ranged 50-80 per 100 sweeps on Pinal County alfalfa. (Ariz. Coop. Sur.).

GREEN LACEWINGS (Chrysopa spp.) - NEBRASKA - Light, less than 1 per 20 sweeps, on wheat and alfalfa in Saunders and Lancaster Counties. (Keith).

SYRPHID FLIES - NEW YORK - Heavy and laying eggs among aphids April 17 in Clinton and Essex Counties. (N.Y. Wkly. Rpt.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larvae from dooryard grapefruit at 2 locations in Miami, Dade County. (Bell, Hancock). Larvae in Terminalia muelleri fruit at location in Lake Park, Palm Beach County, January 8. (Messec). T. muelleri new Florida Department of Plant Industry host record. (Fla. Coop. Sur.). Damage economic in 20-acre grapefruit grove in Fort Pierce area, St. Lucie County; 10 percent fruit drop. (PPC South. Reg., Mar. Rpt.).

CEREAL LEAF BEETLE (Oulema melanopus) - INDIANA - Adults averaged 4 per sweep on winter wheat field margins in New Carlisle area, St. Joseph County; evident on young oats. Egg laying begun on less than 1 percent of plants in wheat and oat field margins. (Kruse). OHIO - Adults light on Williams County wheat April 12; up to 5 and 6 per 100 sweeps in spots April 24 despite cooler temperatures. Adults caged indoors in Williams County began mating and ovipositing April 19. (Phillips, Lyon). Adults 1 per 10 sweeps on some Defiance County wheat April 16 (Scott), 2 per 10 sweeps on Hardin County grass April 19 (Forrester), and 1 per 1,000 sweeps on Fayette County wheat April 22 (Wheeler). Damage to oats predicted in some northwestern counties. (Lyon). MICHIGAN - Adults mainly in Berrien County grass borders; increasing in wheat. (Ruppel, Gomulinski).

GRASSHOPPERS - VIRGINIA - One Chortophaga viridifasciata adult per 10 square yards in 1.5-acre clover field in Amherst County; no nymphs. (Allen, Apr. 18). OKLAHOMA - First hatch April 2-8 in alfalfa margins in Garvin, Carter, McClain, and Love Counties; Melanoplus spp. dominant. Ageneotettix deorum 1 per 5 sweeps on rangeland in Comanche, Kiowa, and Tillman Counties. Mostly A. deorum and Melanoplus spp. 1 per 2 sweeps on rangeland April 16-22 and Melanoplus spp. 1 per 2 sweeps in alfalfa margins in Blaine, Major, and Woods Counties. (Okla. Coop. Sur.).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Recovered 130 egg clusters from 16 locations in 5 boroughs of New York City. PENNSYLVANIA - Additional egg clusters found on periphery of infestation on Hawk Mountain, Berks County. (PPC East. Reg., Mar. Rpt.). Hatch begun April 15 on oaks in northern Berks County. (Jeffery).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Trap locations and number of sex lure traps through March 30 as follows: Kern County - 1,631 outside drop area, 225 inside drop area; Riverside County - Coachella Valley 100, Palo Verde Valley 10; San Bernardino County - Needles 5; Imperial County - Imperial Valley 20, Bard Valley 5. Traps serviced twice a week using 6 female equivalents per baiting. (PPC West. Reg.). ARIZONA - Adult emergence continues from experimental cages in Yuma, Maricopa, and Graham Counties. (Ariz. Coop. Sur.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Egg clusters very light in small area of Lincoln County, north of 1967 controlled area, and in 20-section area 20 miles south of Raton and 75 miles northwest of treated area in Colfax County. (PPC West. Reg., Mar. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ARKANSAS - Total of 83 acres treated in isolated infestations in Crittenden and Mississippi Counties. TENNESSEE - Surface applications made on infested areas in Davidson, Lincoln, and Wayne Counties; treatment completed in Davidson County. NORTH CAROLINA - Control work completed in several counties; progress good in all areas. SOUTH CAROLINA - Controls applied to isolated infested areas in Calhoun, Chesterfield, Darlington, Florence, Orangeburg, and McCormick Counties; only small acreages untreated. (PPC South. Reg., Mar. Rpt.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - VIRGINIA - Found 4 new infestations in city of Virginia Beach. (PPC East. Reg., Mar. Rpt.).

HAWAII INSECT REPORT

New State Record - Two LARGE MANGO TIP BORER (Bombotelia jocosatrix (Guenée)) adults taken at light in Punahou area of Honolulu, Oahu, in early April. Det. by M. Chong, confirmed by E.L. Todd. This insect of mango is known to occur in northern Queensland, Australia, and in Thailand, Ceylon, and Indonesia (Java). (Au). The species is also recorded from southern India. This is a new Western Hemisphere record but is not known to occur in continental United States. There are specimens in the U.S. National Museum from the Philippine Republic. In Taiwan, this species is parasitized by Euplectrus taiwanus (a eulophid wasp). Damage to mango is severe in northern Queensland in some years. First symptom of infestation is wilting of some of the growing tips on the outside of the trees, accompanied by blackening of leaves on these twigs. Die-back follows and dormant buds on the more mature wood develop and produce a bunched type growth. It is presumed eggs are laid on young growth, usually in spring, when damage is usually observed. Larvae bore in shoots from the tip to the thicker part where they pupate in silken cocoons. (PPC).

Vegetables - All stages of SOUTHERN GREEN STINK BUG (Nezara viridula) heavy on white-stemmed cabbage and lettuce in Waianae area, Oahu; light to medium and widespread on various other vegetable crops. Spray operations frequently interrupted by rains. (Mahekoa). CARMINE SPIDER MITE (Tetranychus telarius) heavy in many watermelon and snap bean fields on Oahu, especially in Waianae and north shore areas; control difficult. (Yamamoto). Larvae and adults of LEAF MINER FLIES (Liriomyza spp.) medium on tomato in Waialua and on cantaloups in Waianae, Oahu; generally light on snap beans, cucumbers, and watermelons in other areas on Oahu. (Yamamoto, Funasaki).

Fruits - Two STINK BUG (Plautia stali) adults taken from nearly mature strawberry guava at Lanikai, Oahu. (Davis).

Ornamentals - GREEN SCALE (Coccus viridis) adults very heavy and causing heavy sooty mold on many aalii shrubs (Dodonaea eviocarpa) at Polihua, Lanai. (Kajiwara).

Beneficial Insects - Larvae, pupae, and adults of a GORSE WEEVIL (Apion ulicis) in 85 percent of mature pods in 5 acres of gorse at Haleakala National Park, Maui. (Tamura). Larvae and adults of a NOCTUID MOTH (Hypena strigata) heavy and causing 95 percent defoliation in 1,000 acres of lantana in Keokea and Ulupalakua, Maui, at 2,500 feet elevation. (Miyahira).

Miscellaneous Insects - CROTON CATERPILLAR (Achaea janata) larvae medium on castorbean in few scattered areas at Waiakoa, Maui. (Ah Sam).

LIGHT TRAP COLLECTIONS

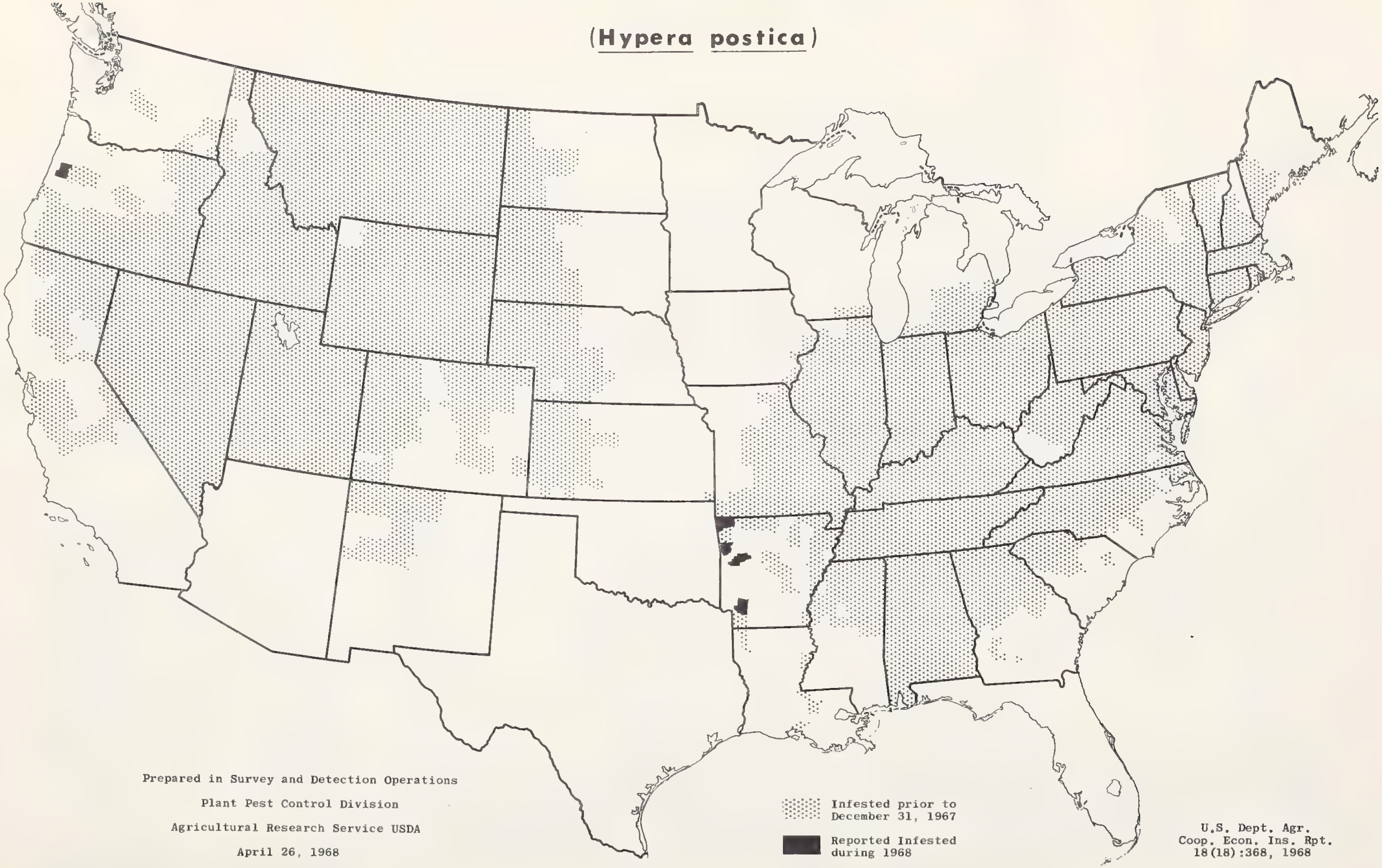
	Temperature °F.	Precipitation (inches)	Type of trap BL = blacklight I = incandescent MV = mercury vapor O = other	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Trichoplusia ni (cabbage looper)	Crops
FLORIDA																								
Gainesville 4/19-25			BL	19					90	4	3							1	10	2				
Monticello 4/18-24			2BL	13			4			6								25		11			5	
MISSISSIPPI																								
Stoneville 4/20-26	50-86	0.50	2BL	17			10		1		2							31	28	110			16	
MISSOURI																								
Portageville 4/20-26				8														104	3	549				
TEXAS																								
Brownsville 4/20-26	54-87	0.08	2BL	15			75		37	22	3				19	6		29	17	6			42	
Waco 4/20-26			BL	18					35		44							62	55	135	7		113	

Weather of the Week continued from page 352.

TEMPERATURE: Cool weather persisted over the western half of the Nation for the second consecutive week. It was especially cool early in the week when freezing temperatures occurred over most of New Mexico. A warming trend began in the West late in the week. Much of the West averaged 6° to 12° below normal. The cool weather in the Central and East ended a warm spell which had lasted for 8 weeks from Minnesota to Michigan and about 5 weeks further east. The Northern States were especially cool on Tuesday and Wednesday. The coolest air reached the South about Thursday and Friday. Most of the East averaged 1° to 6° below normal. The Florida Peninsula and northern New England were slightly warmer than normal. (Summary supplied by Environmental Data Service, ESSA.)

Distribution of Alfalfa Weevil

(Hypera postica)


Infested prior to December 31, 1967
Reported Infested during 1968

Prepared in Survey and Detection Operations

Plant Pest Control Division

Agricultural Research Service USDA

April 26, 1968

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
18(18):368, 1968

SURVEY METHODS

Selected References 1959*

Part VII

Additional copies of Parts I through VII of this bibliography are available from Survey and Detection Operations.

POPULATION MEASUREMENT

COLBERG, W. J. and GOODFELLOW, V. V. 1959. Armyworms, cutworms, barley thrips (Methods used in North Dakota). U.S. Dept. Agr. Coop. Econ. Ins. Rpt. 9(42):942.

COLBERG, W. J. and GOODFELLOW, V. V. 1959. Beet webworm (Methods used in North Dakota). U.S. Dept. Agr. Coop. Econ. Ins. Rpt. 9(44):970.

COLBERG, W. J. and GOODFELLOW, V. V. 1959. Grain aphids (Methods used in North Dakota). U.S.Dept. Agr. Coop. Econ. Ins. Rpt. 9(29):665.

IVES, W. G. H. 1959. A technique for estimating tamarack foliage production, a basis for detailed population studies of the larch sawfly. Canad. Ent. 91(8): 513-519.
Pristiphora erichsonii

JOHANSEN, C. 1959. Clover aphid. U.S. Dept. Agr. Coop. Econ. Ins. Rpt. 9(8): 110.
Sampling method

LOOMIS, E. C. and SHERMAN, E. J. 1959. Comparison of artificial shelters and light traps for measurement of *Culex tarsalis* and *Anopheles freeborni* populations. Mosquito News 19(4):232-237

MURRAY, W. D. 1959. Measuring adult populations of the pasture mosquito *Aedes nigromaculis* (Ludlow). Calif. Mosquito Cont. Assoc. Proc. 27:67-71.
Changes in population noted by counts on observer.

REARING

BATRA, H. N. and KUMAR, K. 1959. Technique for rearing of *Indarbela tetraonis* (Moore), (Metarbelidae: Lepidoptera) in the laboratory. Indian J. Ent. 20(3):240-241.

BENDER, G. L. 1959. Studies on a synthetic diet for the scorpion, *Centruroides sculpturatus*. N. Y. Acad. Sci. Ann. 77(2):262-266.

CLARKE, C. A. and SHEPPARD, P. M. 1959. The breeding of *Papilio dardanus* Brown in England; technique and some results. Entomologist 92(1152):89-95.

CLAYTON, R. B. 1959. A simplified method for the culture of *Blattella germanica* under aseptic conditions. Nature (London) 184(4693):1166-1167.

DAVIS, G. R. F. 1959. A method for rearing larvae of *Ctenicera aeripennis destructor* (Brown) (Coleoptera: Elateridae) aseptically in test tubes. Ent. Soc. Amer. Ann. 52(2):173-175.

---

* Additional citations for 1960, 1961, 1965, and 1966 are included at the end of the 1959 listing.

FREDEEN, F. J. H. 1959. Rearing black flies in the laboratory (Diptera: Simuliidae). Canad. Ent. 91(2):73-83.

FRINGS, H. and FRINGS, M. 1959. Notes on rearing the moths, *Cisseps* (*Scepsis*) *fulvicollis* (Hbn.) and *Ctenucha virginica* (Charp.) in the laboratory. J. Econ. Ent. 52(1):168-169.

GALLUN, R. L. 1959. Method of evaluating survival of Hessian fly larvae when reared on wheat grown in hydroponic solutions with controlled deficiencies. Ent. Soc. Amer. No. Cent. Br. Proc. 14:39-40.
Mayetiola destructor

HERRERA A., J. M. 1959. New equipment and technique for the mass rearing of species of *Trichogramma*. Rev. Peruana Ent. Agr. (Lima) 2(1):30-35. Refs. In Sp., Engl. Sum.

LABEYRIE, V. 1959. Technique d'elevage de *Chelonus contractus* Nees. parasite de *Phthorimea ocellatella* Boyd. Entomophaga 4(1):43-46. Engl. Sum.

LANE, C. 1959. A fruit diet for the caterpillar of the white ermine moth (*Spilosoma lubricipeda* (L.)) *menthastri* (Esp.) (Lep., Arctiidae) Ent. Mon. Mag. 95(1136):13.

LAWSON, F. A. 1959. Some specialized rearing methods for cockroaches. Ent. Soc. Amer. No. Cent. Br. Proc. 14:40.
Blaberus

LEFFEF, W. J. B. 1959. Rearing of *Cleora cinctaria* Schiff. Ent. Ber. 19(3):48. In Dutch.

LIEN, J. 1959. Laboratory culture of *Aedes togoi* and measurements of its susceptibility to insecticides. Roy. Soc. Trop. Med. and Hyg. Trans. 53(4):305.

MEULEN, G. S. A. VAN DER. 1959. Rearing of *Epirrhoe tristata* L. (Lep. Geom.). Ent. Ber. 19(9):192. In Dutch.

MULLER, J. 1959. Rearing rare forms of *Catocala* and *Apantesis*, and a plea for more rearing of Lepidoptera. Lepidopterists' Soc. J. 13(3):182-183.

NAGASAWA, S. and KISHINO, M. 1959. Problems on the breeding of insects for biological assay of insecticides. XXIII-XXV. Botyu-Kagaku 24(1):1-22. In Jap., Engl. Sum.
Musca domestica vicina

PARR, H. C. M. 1959. Studies on *Stomoxys calcitrans* (L.) in Uganda, East Africa. I. A method of rearing large numbers of *Stomoxys calcitrans*. Bul. Ent. Res. 50(1):165-169.

RAW, F. 1959. An insectary method for rearing cacao mirids, *Distantiella theobroma* (Dist.) and *Sahlbergella singularis* Hagl. Bul. Ent. Res. 50(1):11-12.

RODRIGUEZ, J. G. 1959. A simplified method of rearing mites using detached leaf culture. Ent. Soc. Amer. No. Cent. Br. Proc. 14:40.
Tetranychus spp. and *Panonychus ulmi*

EQUIPMENT AND TECHNIQUES

ADKINS, T. R., JR. and ARANT, F. S. 1959. A technique for the maintenance of a laboratory colony of *Cimex lectularius* L. on rabbits. J. Econ. Ent. 52(4):685-686.

ASAHINA, E. 1959. Prefreezing as a method enabling animals to survive freezing at an extremely low temperature. Nature (London) 184(4691):1003-1004.
Includes insects

BURGESS, L. 1959. Techniques to give better hatches of the eggs of *Aedes aegypti* (L.) (Diptera: Culicidae). Mosquito News 19(4):256-259.

EDWARDS, D. K. 1959. A photographic method for recording activity and behaviour in a group of small animals. Nature (London) 183(4661):625-626.
Insects

KHUDADOV, G. D. 1959. The method of marking insects by introducing radioactive isotopes incorporated into the foodstuffs. Moskov. Obshch. Isp. Prirody. Bul. Otd. Biol. 64(3):35-45. In Rus., Engl. Sum.
Musca domestica and *Blattella germanica* used as examples

LENNOX, E. K. 1959. A versatile mosquito rearing cage. Mosquito News 19(4): 280-282.

MILNER, M. 1959. New methods to detect and eliminate insect-infested grain. Nowest. Miller (Milling Prod. Sect.) 261(15):14a-15a.

MULKERN, G. B. and ANDERSON, J. F. 1959. A technique for studying the food habits and preferences of grasshoppers. J. Econ. Ent. 52(2):342.
Analysis of contents of crop

SILVER, G. T. 1959. A method for sampling eggs of the black-headed budworm. J. Forestry 57(3):203-205.
Acleris variana

WALKER, J. K., JR. and BRAZZEL, J. R. 1959. A method for collecting diapausing boll weevils for hibernation studies. J. Econ. Ent. 52(2):346-347.
Anthonomus grandis

TRAPS

ARMITAGE, H. M. 1959. Aromatic bait traps as a factor in insect spread. J. Econ. Ent. 52(1):157-158.

BANKS, C. J. 1959. Experiments with suction traps to assess the abundance of Syrphidae (Diptera), with special reference to aphidophagous species. Ent. Expt. et Appl. 2(2):110-124.

BIRKETT, N. L. 1959. Some records of hover-flies (Dipt., Syrphidae) at mercury-vapour light. Ent. Mon. Mag. 95(1138):63.

BLAKESLEE, T. E., AXTELL, R. and JOHNSTON, L. 1959. *Aedes vexans* and *Culex salinarius* light trap collections at five elevations. Mosquito News 19(4):283.

CLOSE, R. 1959. Sticky traps for winged aphids. New Zeal. J. Agr. Res. 2(2): 375-379.

COMMON, I. F. B. 1959. A transparent light trap for the field collection of Lepidoptera. Lepidopterists' Soc. J. 13(2):57-61.

CUMBER, R. A. and HARRISON, R. A. 1959. Preliminary flight records of Diptera taken with a modified Rothamsted light trap operated at Paiaka. New Zeal. J. Sci. 2(2):237-239.

DOW, R. P. 1959. A method of testing insect traps and attractants, and its application to studies of *Hippelates pusio* and *Culex tarsalis*. J. Econ. Ent. 52(3):496-503.

DU CHANOIS, F. R. 1959. Relative periodic attractivity of light traps to adult mosquitoes as an index to mosquito annoyance intensity. N. J. Mosquito Extermin. Assoc. Proc. 46:170-180.

FROST, S. W. 1959. Insects captured in black-painted and unpainted light traps. Ent. News 70(2):54-55.

FROST, S. W. 1959. Insects caught in light traps with new baffle designs. J. Econ. Ent. 52(1):167-168.

GRIGARICK, A. A. 1959. A floating pan trap for insects associated with the water surface. J. Econ. Ent. 52(2):348-349.

HEMMINGS, R. J. 1959. Observations on the operation of mosquito light traps with a cylindrical vertical screen. Mosquito News 19(2):101.

JENKINS, L. E. 1959. Fly baits and traps. U.S. Dept. Agr. Coop. Econ. Ins. Rpt. 9(12):207.

LEWIS, T. 1959. A comparison of water traps, cylindrical sticky traps and suction traps for sampling thysanopteran populations at different levels. Ent. Expt. et Appl. 2(3):204-215.

LOOMIS, E. C. 1959. A method for more accurate determination of air volume displacement of light traps. J. Econ. Ent. 52(2):343-345.

LOOMIS, E. C. and HANKS, S. G. 1959. Light trap indices of mosquito abundance: a comparison of operation for four and seven nights a week. Mosquito News 19(3): 168-171.

MAKSIMOVIC, M. 1959. Testing of trap method for capturing the gypsy moth males. Zastita Bilja 52/53:177-181. In Serbo-Croatian, Engl. Sum.
Porthetria dispar

MEYERS, E. G. 1959. Mosquito collections by light traps at various heights above ground. Calif. Mosquito Control Assoc. Proc. 27:61-63.

NIJVELDT, W. 1959. On the use of conical traps in the study of gall midges. Tijdschr. over Planteziekten 65(2):56-59. In Dutch, Engl. Sum.

PARKHE, D. P. and KURUP, A. R. 1959. Tests on modified vertical suction light trap and various other types of traps for the cigarette beetle (*Lasioderma serricorne* F.) in the tobacco godowns. Indian Tobacco 9(2):97-99.

PROVOST, M. W. 1959. The influence of moonlight on light-trap catches of mosquitoes. Ent. Soc. Amer. Ann. 52(3):261-271.

REED, D. E. 1959. Mosquito light trap captures without benefit of light. Calif. Mosquito Control Assoc. Proc. 27:63-66.
Culex pipiens quinquefasciatus and *C. tarsalis*

SMITH, P. W., TAYLOR, J. G. and APPLE, J. W. 1959. A comparison of insect traps equipped with 6- and 15-watt blacklight lamps. J. Econ. Ent. 52(6):1212-1214.

STAPLES, R. and ALLINGTON, W. B. 1959. The efficiency of sticky traps in sampling epidemic populations of the eriophyid mite *Aceria tulipae* (K.), vector of wheat streak mosaic virus. Ent. Soc. Amer. Ann. 52(2):159-164.

STEINER, H. and NEUFFER, G. 1959. Improved attractiveness of the Stuttgart light-trap. A postscript. Z. f. Pflanzenkrankheiten 66(4):221-223. Refs. In Ger., Engl. Sum.

TODD, R. G. 1959. M. V. traps. Ent. Rec. and J. Variation 71(10):244.
Mercury vapor

ZHOGOLEV, D. T. 1959. Light traps as a method of collecting and study of insects as carriers of a disease. Ent. Obozr. 38(4):766-773. In Rus., Engl. Sum.
Culicoides, mosquitoes, and Phlebotomus

* *

ADDITIONAL REFERENCES

1960, 1961, 1965 and 1966

POPULATION MEASUREMENT

HARCOURT, D. G. 1966. Sequential sampling for the imported cabbageworm, Pieris rapae (L.). Canad. Ent. 98(7):741-746.

KOSLINSKA, M. 1966. The evaluation of utility of some methods of counting the numbers of eggs laid by the plum fruit moth (Laspeyresia funebrana Tr. Lepidoptera: Tortricidae). Skierniewice. Inst. Sadownictwa. Prace. 10:301-306. In Pol., Engl. Sum.

ZETTLER, F. W. and WILKINSON, R. E. 1965. Intraseasonal abundance of aphid species trapped in an area where spread of bean common mosaic virus occurs. (Abstract)--Phytopathology 55(10):1085.

REARING

ANDERSON, N. L. and HASTINGS, E. 1966. Some notes on rearing Aulocara elliotti (Orthoptera: Acrididae). Ent. Soc. Amer. Ann. 59(4):718-719.

ASHRAFI, S. H., MUZAFFAR, S. A. and ANWARULLAH, M. 1966. Mass rearing of mosquitoes, house flies and cockroaches in P. C. S. I. R.'s laboratories for insecticide testing. Sci. Indus. 4(4):312-316.
Pakistan Council of Scientific and Industrial Research
Aedes aegypti, Musca domestica and Periplaneta americana

AZEVEDO, J. F. DE and PINHAO, R. DA C. 1966. Rearing the tsetse fly in Lisbon; an accident due to an insecticide. Inst. Med. Trop. An. 23(1/2):11-22, Map. In Por., Engl. Sum.
Glossina

BEDARD, W. D. 1966. A ground phloem medium for rearing immature bark beetles (Scolytidae). Ent. Soc. Amer. Ann. 59(5):931-938.

BENSCHOTER, C. A. and PANIAGUA, G. 1966. Reproduction and longevity of Mexican fruit flies, Anastrepha ludens (Diptera: Tephritidae), fed biotin in the diet. Ent. Soc. Amer. Ann. 59(2):298-300.

BOT, J. 1965. An aseptic artificial rearing medium for the false codling moth Argyroploce leucotreta Meyr. S. Afr. J. Agr. Sci. 8(4):1075-1078.

BOT, J. 1966. Rearing Heliothis armigera Hubn. and Prodenia litura F. on an artificial diet. S. Afr. J. Agr. Sci. 9(3):535-538. Engl. Sum.

BUSCHINGER, A. 1966. Studies of Harpagoxenus sublaevis Nyl. (Hym., Formicidae) II. Rearing and upbringing of broods. Insectes Sociaux 13(4):311-322. In Ger., Engl. Sum.

DAVIS, G. R. F. 1966. Replacement of RNA in the diet of Oryzaephilus surinamensis (L.) (Coleoptera: Silvanidae) by purines, pyrimidines, and ribose. Canad. J. Zool. 44(5):781-785.

DAVIS, G. R. F. 1966. Survival and development of Oryzaephilus surinamensis (L.) (Coleoptera: Silvanidae) on wheat-flour diets and on casein diets supplemented with biotin and ascorbic acid. Canad. Ent. 98(3):263-267.

DROOZ, A. T. 1966. Color studies of reared elm spanworm larvae and pupae. Ent. Soc. Amer. Ann. 59(3):568-573.

EARLE, N. W., WALKER, A. B. and BURKS, M. L. 1966. An artificial diet for the boll weevil, Anthonomus grandis (Coleoptera: Curculionidae), based on the analysis of amino acids in cotton squares. Ent. Soc. Amer. Ann. 59(4):664-669.

EBEL, B. H. 1966. Rearing and occurrence of xyelid sawflies on slash and longleaf pines in north Florida (Hymenoptera: Xyelidae). Ent. Soc. Amer. Ann. 59(1): 227-229.

FALES, J. H., BODENSTEIN, O. F. and KELLER, J. C. 1961. Face fly laboratory rearing. First successful rearing in the laboratory of Musca autumnalis, a serious pest of livestock is major step forward in developing controls. Soap and Chem. Spec. 37(4):81-83.

GILLET, N. 1966. Rapid rearing of Loepa katinka Westw. Lambillionea 65(3/4): 19-21.
Saturniid from Japan

KAISER, M. N. 1966. The subgenus Persicargas (Ixodoidea, Argasidae, Argas). 3. The life cycle of A. (P.) arboreus, and a standardized rearing method for argasid ticks. Ent. Soc. Amer. Ann. 59(3):496-502.

KIYOKU, M. and TSUKUDA, R. 1966. Successive laboratory cultures of the tobacco-cutworms Prodenia litura Fabricus on some simple semisynthetic media. Okayama. Univ. Fac. Agr. Sci. Rpt. 28:1-11. In Jap., Engl. Sum.

MCGHEHEY, J. H. and NAGEL, W. P. 1966. A technique for rearing larvae of Medetera aldrichii (Diptera: Dolichopodidae). Ent. Soc. Amer. Ann. 59(2):290-292.

MULLER, H. J. and HENNIG, E. 1965. A method of mass rearing of aphids for ecological and physiological studies. Arch. Pflanzenschutz 1(1):41-48. In Ger., Engl. Sum.
Aphis fabae on Vicia faba

NAYAR, J. K. 1966. A method of rearing salt-marsh mosquito larvae in a defined sterile medium. Ent. Soc. Amer. Ann. 59(6):1283-1285.

PARROTT, W. L., MAXWELL, F. G. and JENKINS, J. N. 1966. Feeding and oviposition of the boll weevil, Anthonomus grandis (Coleoptera: Curculionidae), on the rose-of-sharon, an alternate host. Ent. Soc. Amer. Ann. 59(3):547-550.

PIMENTEL, D. 1966. Wasp parasite (Nasonia vitripennis) survival on its house fly host (Musca domestica) reared on various foods. Ent. Soc. Amer. Ann. 59(6): 1031-1038.

RYBICKI, M. and JEZIERSKA, B. 1966. Reaction of alimentary canal tissues to diet and its effect on development of larvae of Gryllotalpa gryllotalpa L. (Orthoptera). Zoologica Poloniae 16(2):121-130.

SOLOMON, J. D. 1966. Artificial rearing of the carpenterworm, Prionoxystus robiniae (Lepidoptera: Cossidae), and observations of its development. Ent. Soc. Amer. Ann. 59(6):1197-1200.

TSUKUDA, R. and KIYOKU, M. 1966. Laboratory cultures of the tobacco-cutworms *Prodenia litura* Fabricius on the synthetic media. Okayama. Univ. Fac. Agr. Sci. Rpt. 28:13-18. In Jap., Engl. Sum.

ZAPLETAL, F. 1966. Methods for artificially rearing bumble bees in hives and for overwintering bumble bee queens. Bee World 47(sup.):167-171. In Cz.

EQUIPMENT AND TECHNIQUES

CHAUTHANI, A. R. and CALLAHAN, P. S. 1966. A dissection technique for studying internal anatomy of different stadia of noctuidae. Ent. Soc. Amer. Ann. 59(5): 1017-1018.

CLARK, R. C. and BROWN, N. R. 1960. A method of adapting a microscope for observation of non-motile insects on tree trunks. Canad. Ent. 92(1):79-80.

FRIEDRICH, E. 1966. A method for overwintering Lepidoptera eggs. Ent. Z. 76(19):227-229.
A container to store in the refrigerator

HARLAN, D. P. and ENNS, W. R. 1966. Surface-printing of grasshopper eggs for identification. Ent. Soc. Amer. Ann. 59(5):1018-1020.

HARMAN, D. M. and KULMAN, H. M. 1966. A technique for sexing live white-pine weevils, *Pissodes strobi*. Ent. Soc. Amer. Ann. 59(2):315-317.

MCFARLAND, N. 1966. A moth sheet; for attracting and retaining live specimens without the use of a trap or tent-enclosure. J. Res. Lepidoptera 5(1):29-36.

NEWHOUSE, V. F., CHAMBERLAIN, R. W., JOHNSTON, J. G. and SUDIA, W. D. 1966. Use of dry ice to increase mosquito catches of the CDC miniature light trap. Mosquito News 26(1):30-35.

SMITH, H. G. and HYNES, C. D. 1966. Modifications of the N-butyl methacrylate imbedding method as applied to insect larval head capsules. Ent. Soc. Amer. Ann. 59(1):230.

TARSHIS, I. B. 1966. A method of shipping live larvae of *Simulium vittatum* long distances (Diptera: Simuliidae). Ent. Soc. Amer. Ann. 59(4):866-867.

TRAPS

ALPER, M. and LOEBENSTEIN, G. 1966. Trapping of flying aphids in several areas of Israel, as a guide to growing virus free potato and iris stocks. Israel J. Agr. Res. 16(3):143-146.

GRAHAM, J. E. and BRADLEY, I. E. 1965. Notes on light trap catches of *Culex tarsalis* in Salt Lake County, Utah. Calif. Mosquito Control Assoc. Proc. 33:62-63.

KOVITVADHI, K. and CANTELO, W. W. 1966. The use of light traps to measure relative population densities of the rice gall midge, *Pachydiplosis oryzae* and other insect pests of rice. Int. Rice Comm. News Let. 15(2):16-19.

ROTH, M. 1966. Apropos some rare or little known insects captured in colored traps. Soc. Ent. France Bul. 71(5/6):112-113.

ATTRACTANTS

BERGER, R. S. 1966. Isolation, identification, and synthesis of the sex attractant of the cabbage looper, *Trichoplusia ni*. Ent. Soc. Amer. Ann. 59(4): 767-771.

BORDEN, J. H. and WOOD, D. L. 1966. The antennal receptors and olfactory response of *Ips confusus* (Coleoptera: Scolytidae) to male sex attractant in the laboratory. Ent. Soc. Amer. Ann. 59(2):253-261.

BYRNE, H. D. and STEINHAUER, A. L. 1966. The attraction of the alfalfa weevil, *Hypera postica* (Coleoptera: Curculionidae), to alfalfa. Ent. Soc. Amer. Ann. 59(2):303-309.

HARDEE, D. D., MITCHELL, E. B. and HUDDLESTON, P. M. 1966. Chemoreception of attractants from the cotton plant by boll weevils, *Anthonomus grandis* (Coleoptera: Curculionidae). Ent. Soc. Amer. Ann. 59(4):867-868.

HARDEE, D. D., MITCHELL, E. B. and HUDDLESTON, P. M. 1966. Effect of age, nutrition, sex, and time of day on response of boll weevils to an attractant from cotton. Ent. Soc. Amer. Ann. 59(5):1024-1025.

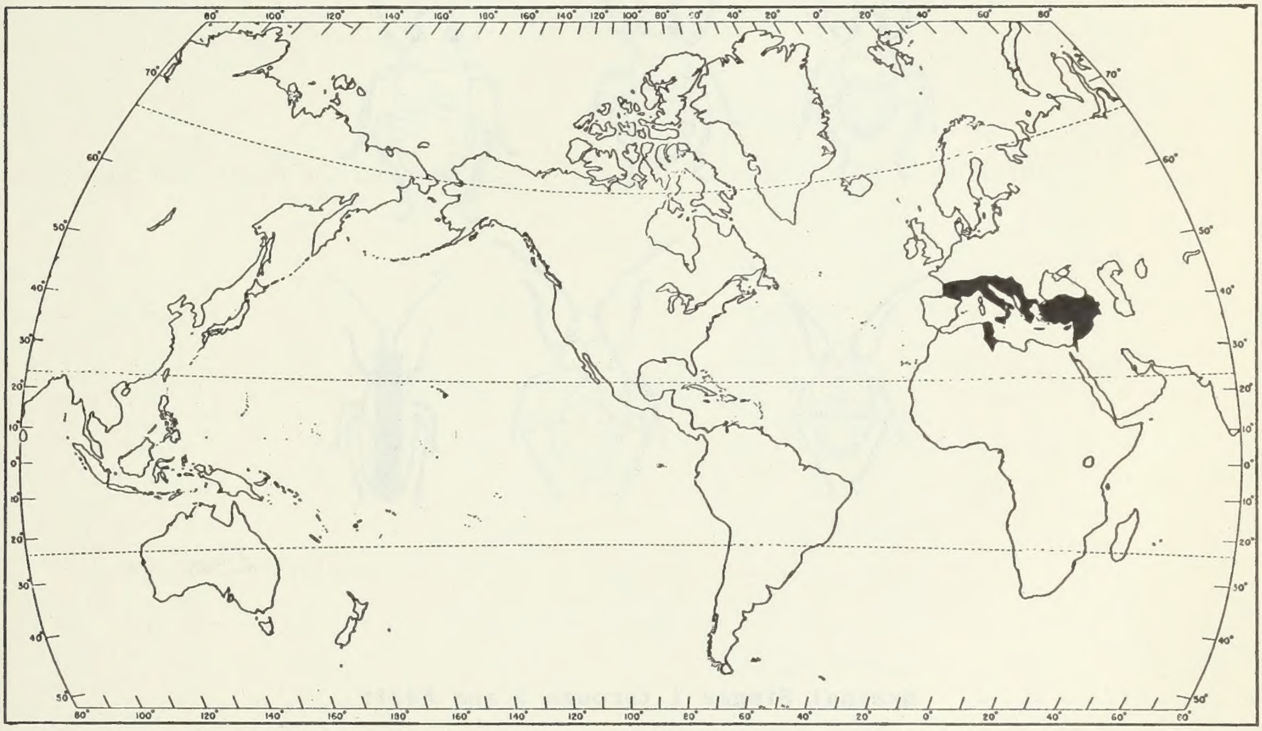
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

ORANGE BLOSSOM BUG (Dionconotus cruentatus (Brullé))

Economic Importance: This plant bug, sometimes a pest of orange blossoms locally over its range, is occasionally important in Lebanon and Israel. Although the adults damage citrus, the nymphs develop on weeds and grasses. Adults are strongly attracted to orange blossoms which they pierce. The punctured buds dry up and drop in a few days. An additional set of blossoms develops and late fruit is formed but the latter is leathery and of a poor quality. Relatively little damage occurs on cereals.

Distribution: Cyprus, France (southern), Greece, Israel, Italy (including Sicily), Lebanon, Syria, Tunisia, Turkey, and Yugoslavia.

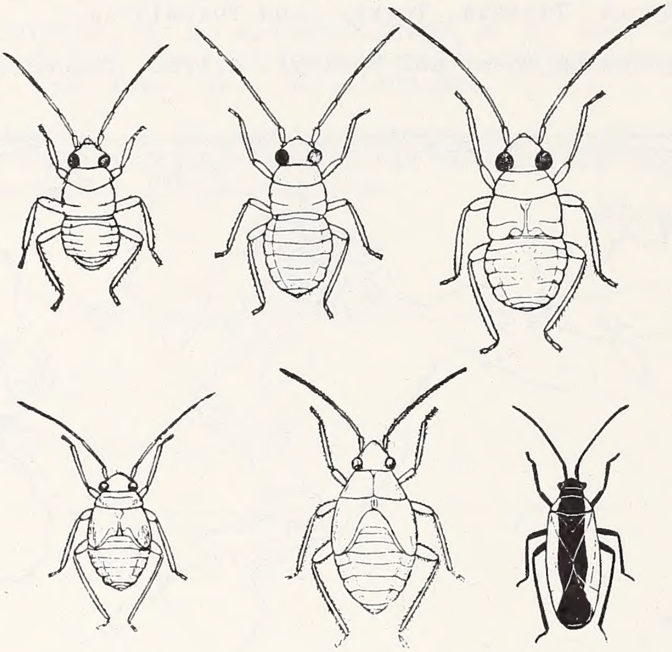
Hosts: Grasses (including wheat and barley), citrus, legumes, mullein, *Rubus* sp. and other plants.



General Distribution of Dionconotus cruentatus (Brullé)

Life History and Habits: Under conditions in Israel the biology is as follows: According to Bodenheimer (1951), the bulk of the eggs is laid in stalks of grasses and herbaceous plants. Eggs are in diapause from spring to December when winter rains break diapause. Nymphs start hatching in late December and require 5-6 weeks to become mature. Adults may appear during the first of February but more often during the latter part. They rarely are seen again until the middle of March. Nymphs and adults are quite active, and will drop to the ground to feign death or fly away when approached. At night, they hide under grasses but become active at sunrise. Under laboratory conditions, females have lived up to 19 days.

Description: ADULT - Length 13 mm. including wings. Head broad with large protruding eyes; antennae black and four-jointed. Pronotum trapezoidal. A dark red, broad longitudinal stripe near margin of front pair of wings but black on middle portion. Body and legs black. The pattern and coloration help to distinguish it from closely related species. NYMPH - First stage - length 1.8 mm. Black brown with reddish brown marginal stripes on dorsum. Antennae brown; claws grayish yellow. Upper side of abdomen reddish and glassy. Fifth stage - length 5 mm. Body black. Margin of upper side of abdomen and front pair of wings red.



Nymphal Stages 1 through 5 and Adult

After Bodenheimer, permission of Dr. W. Junk, Publishers

Selected References: 1. Bodenheimer, F. S. 1951. Citrus Entomology in the Middle East. 663 pp., The Hague. 2. Bodenheimer, F. S. 1928. Palestine Citrograph 1(11/12):12-13. 3. Gentry, J. W. 1965. U.S. Dept. Agr. Handb. 273:96. 4. Quayle, H. J. 1938. Insects of Citrus and Other Subtropical Fruits. 583 pp., Ithaca.

Prepared in Survey and Detection
Operations in cooperation with other
ARS agencies.

U.S. Dept. Agr.
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18(18):377-378, 1968

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